



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-----------------------|----------------------|------------------|
| 10/821,767 | 04/09/2004 | Michael Tolbert Myers | SHEL.110604 / TH2478 | 1457 |

23632 7590 11/06/2007
SHELL OIL COMPANY
P O BOX 2463
HOUSTON, TX 772522463

| |
|----------|
| EXAMINER |
|----------|

SAINT SURIN, JACQUES M

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2856

| | |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

11/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------------------|------------------------------|--|
| Office Action Summary | Application No. 10/821,767 | Applicant(s) MYERS ET AL. | |
| | Examiner Jacques M. Saint-Surin | Art Unit 2856 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/22/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-30 and 34-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 49-63 and 66-75 is/are allowed.
- 6) ☒ Claim(s) 1-10, 14, 15, 20-25, 34-39, 41-47, 64 and 65 is/are rejected.
- 7) ☒ Claim(s) 11-13, 17-19, 26-30, 40 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to the amendment of 08/22/07.

Response to Arguments

2. Applicant's arguments with respect to claims 1-15, 17-30, 34-75 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-6, 14-15, 20-24, 34-39 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feller (US Patent 6,178,827) in view of Ciglenec et al. (US Patent 7,124,819).

Regarding claims 1, 14 and 20, Feller discloses an apparatus (flow sensor 10) for acoustically analyzing a fluid (12) comprising:

a chamber (14) for holding the fluid (12);

a transmitter (16) positioned within the chamber (14) for transmitting an acoustic signal through the fluid (12) in said chamber (14);

a reflector (20) positioned within the fluid (12) for reflecting the acoustic signal through the fluid (12) in said chamber (14); and a receiver (18) positioned within the chamber (14) for detecting a reflection of the acoustic signal and wherein the acoustic signal that is detected does not leave the chamber before detection (Fig. 1 shows chamber 14 and detection signal inside the chamber 14). However, Feller does not

disclose wherein said apparatus is incorporated in a downhole sampling. Ciglenec discloses depicts in Fig. 4 a sensor package 416 is used to detect certain properties of the fluid that is drawn into the pump chamber 404 (see: col. 9, lines 32-36). Ciglenec further depicts FIG. 7 shows a detailed cross section of a probe assembly 211 that may be used with a formation evaluation while drilling tool in accordance (col. 14, lines 24-27). It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate in Feller the techniques of Ciglenec et al. because using a probe, a formation tester can measure the pressure of the formation fluids, generate a pressure pulse to determine the formation permeability, and withdraw a sample of formation fluid for later analysis thereby, making the above combination more effective.

Regarding claims 14 and 20, they are similar in scope with claim 1. Therefore, they are rejected for the reasons set forth for that claim. Furthermore, Feller discloses a first piston (post 36, Fig. 1A) for supporting the transducer (housing 24 includes transducer 18 and 16) within the fluid (12).

Regarding claims 2-3, 15 and 64-65, Feller does not disclose wherein the chamber comprises a sealed first end, a piston slidably disposed within a second end of the chamber and a conduit for introducing the fluid into the chamber. Ciglenec discloses the pump 500 includes a pump chamber 521 with a dividing member 522 that creates two pumping sections, a piston 524, having a first end 525 and a second end 526, spans the dividing member 522 to create a first pump section 501 and a first hydraulic section 511 on one side of the dividing member 522 and seals 523 seal around the connecting member 529 to prevent fluid from passing between

the first hydraulic section 511 and the second hydraulic section 512, Seals 527 and 528 are also provided (col. 10, lines 25-42). Ciglenec further discloses a piston assembly 408 includes a first piston 406 positioned in the pump chamber 404. Seals 405, 412 are preferably provided to prevent fluid from flowing between the spring cavity 414 and the pressure cavity 415 and the piston assembly 408 reciprocates, or moves back and forth, by sliding within each of the chambers 404, 410 (col. 6, lines 9-28). Regarding claim 4, Ciglenec discloses sensor 623 may also include a fluid analyzer, a temperature gauge, as well as other measurement devices for determining fluid properties. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Feller the techniques of Ciglenec because it provides a method of formation evaluation that includes establishing fluid communication between a fluid inlet in a formation evaluation while drilling tool and a formation, and drawing fluid into the tool by selectively repeatedly applying an annular pressure to a first side of a piston and applying an internal pipe pressure to the first side of the in a reliable manner thereby making the above combination very effective.

Regarding claims 5, 21, 43, Feller discloses piezoelectric transducers 16 and 18 that are embodied in a single housing 24.

Regarding claims 6 and 22, Feller discloses piston (post 36 in Fig. 1A) mounted within the chamber (14) for supporting the transducer 24 within the fluid (12).

Regarding claim 25, Feller does not disclose determining a property of the fluid. Ciglenec discloses the formation evaluation while drilling system includes sensors that enables the system to determine fluid properties without having to take a sample (see:

col. 9, lines 50-55). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Feller the techniques of Ciglenec because, a pump may include a density sensor, a resistivity sensor, or an optical sensor that enables the determination of certain fluid properties for obtaining a reliable analysis.

Regarding claim 34, Feller discloses reflector 20 that is substantially stationary.

Regarding claims 35-37 and 38-39 and 41-42, Feller discloses the flow sensor configuration of probe 10 is also suitable for use in open channels and in large bodies of water, for example, as it provides for the complete acoustic reflective path within itself. Furthermore, a second set of transducers located in an enlarged form of housing 24, and mounted orthogonally to transducers 16 and 18, which similarly beam to and receive from reflector 20, will provide a measurement of flow rate in a direction orthogonal to the first set whereby their rate and directional components enable a resultant flow rate and angle to be determined by electronic computation (col. 6, lines 48-52).

5. Claims 7-8 and 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feller (US Patent 6,178,827) in view of Ciglenec et al. (US Patent 7,124,819) and further in view of Harth, III et al. (US Patent 5,661,241).

Regarding claims 7-8 and 44-45, Feller in view of Han does not disclose or suggest a square-wave pulser/receiver connected to the transducer and an oscilloscope connected to the square-wave pulser/receiver. Harth, III shows in Fig. 4 pulser-receiver 36 connected to oscilloscope 32 and transducer 40. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in

Feller in view of Han the pulser/receiver of Hart, III because it would provide ultrasonic transducer 40 which detects the ultrasonic pulses from both the base metal/clad interface and cladding/air interface and it, in combination with the pulser/receiver converts these pulses into electrical signals and the high frequency oscilloscope or for that matter any device capable of displaying high frequency wave forms in real time, displays the transmitted and received wave forms thereby making the above combination more effective.

6. Claims 9-10, 23-24 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feller (US Patent 6,178,827) in view of Ciglenee et al. (US Patent 7,124,819) and further in view of Yogeswaren (US Patent 7,075,215).

Regarding claims 9-10, 23-24 and 46-47, Feller in view of Ciglenee does not disclose the reflector is a disc positioned opposite the transducer relative to the piston and the reflector is a ring positioned opposite the transducer relative to the another end of the chamber. Yogeswaren discloses barrier layer 360 is fabricated from a titanium disk (col. 1, lines 3, lines 55-56). Yogeswaren further discloses transducer 340 includes a piezoelectric disk 342 about which a plurality of alternating piezoelectric rings 344A, 344B, 344C, and 344D and non piezoelectric rings 346A, 346B, 346C, and 346D are disposed (col. 9, lines 16-25). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Feller in view of Ciglenee because one of the ordinary skill in the art would be motivated to arrange or locate the reflector ring or reflector disk in the chamber at an opposite end of the transducer in order to provide a better reflection of the signals and would provide the advantages of

having a wide range of configurations and piezoelectric and non piezoelectric materials which may be suitable for downhole applications, depending upon device requirements, cost restraints, the particular downhole conditions, and/or other factors.

Allowable Subject Matter

7. Claims 11-13, 17-19, 26-30, 40 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 49-63 and 66-75 are allowed.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Application/Control Number:
10/821,767
Art Unit: 2856


Page 8

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays to Fridays between 10:30 A.M and 800 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jacques M. Saint-Surin
October 29, 2007


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800